

REMARKS

In the parent application, claims 1-12 were pending and all were rejected under 35 U.S.C. § 102(b) in both the First and Final Office Action. The Notice of Appeal and Appeal Brief were submitted on December 10, 2003 and February 4, 2004 respectively. The Examiner's Answer ("Answer") was mailed on March 12, 2004, which re-recited the ground for rejection. The rejection is traversed. However, to add new claims and to expedite prosecution of the application, a Request for Continued Examination with this Preliminary Amendment is being submitted in which claims 1, 5, and 9 are being amended; claims 2, 6, and 10 are being canceled; and claims 13-27 are being added. Further, in the interest of brevity, arguments in previous papers consistent with arguments in this paper are not repeated but incorporated by references. In view of the above amendments and following remarks, reconsideration and allowance of the application are respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 102 - Frank

In the Answer, claims 1-12 were rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 5,297,265 to *Frank et al* ("Frank"). The rejection is traversed because the Answer did not show all limitations were taught by *Frank*. The Answer is also mistaken in the allegation regarding dependent claims 2-4, 6-8, and 10-12 and in various other aspects.

For example, *Frank*'s cited paragraph of col. 11 lines 59-63 recites "... the processor presents the memory system with an SVA [system virtual address] . . . , and the memory system attempts to satisfy that access by finding the subpage containing the data and returning it." *Frank* thus finds the subpage from the system virtual address, and, as such, there is only one conversion level from the system virtual address to the subpage address. In contrast, claim 1 includes the limitation that upon

a memory access, the relocation table converts an address of a memory page to a relocation block containing the data intended for the memory access, and the address of the memory page was converted from a virtual address of the data. Therefore, the virtual address of the data was converted to the address of the memory page, which was then converted to the address of the relocation block. As can be seen, there are two levels of address conversion from the virtual address to the relocation block.

The Answer recited that “if a subpage containing [the] requested data [is] not present in a local cache, it must be acquired “over the domains” which are depicted in FIG. 1. However, this allegation fails to teach, as claimed in claim 1, “if the data intended for the memory access is not in physical memory, then loading, in physical memory, one or a plurality of relocation blocks containing the data related to the memory access.” While the citation recited “acquired ‘over the domains’”, it failed to specify the claimed feature “loading in physical memory.” FIG. 1 does not show “physical memory.” If “acquired ‘over the domains’” is to the cache system, then this is also distinguished from “loading in physical memory” because in the embodiment of Applicants’ FIG. 1, the cache 140 is distinguished from the physical memory 120.

The cited paragraph of col. 12 lines 9-12, 20-28, and 29-68 discuss that the cache directory records the association between the system page and the SVA pages and if the descriptor is valid, then the descriptor records the associated SVA page address and state information. Additionally, each cache directory, acting as a content-address memory, permits a cache to locate a descriptor for a particular page of SVA. These paragraphs have no bearing on claim 1 because the limitation of claim 1 includes the conversion of the memory page to a relocation block, and, to be parallel, if any, to Applicants’ feature in claim 1, the association must be between the page and the subpages, if *Frank’s* page corresponds to Applicants’ page and *Frank’s* subpages corresponds to Applicants’ relocation blocks.

The allegation that the descriptor for the page records the presence of the subpage shows the descriptors locate the subpage is not true because merely recording the presence of the subpage does not necessarily mean locating the subpage. In the Answer, it was indicated that the subpages may be scattered at various locations. However, *Frank's* FIG. 2A and 2B with associated explanation show that when a subpage is copied from one memory (e.g., 42A) to another memory (e.g., 42B), the directory for the subpage is copied, i.e., there is one directory bas in 42A and another one in 42B. However, in claims 16 and 27, the entry corresponding a relocation block remains pointing to that block if that block moves from one location to another location.

Because claim 1 recites limitations patentably distinguished from *Frank*, claim 1 is patentable.

Claims 3-4 depend directly or indirectly from claim 1 and are therefore patentable for at least the same reasons as claim 1. Claims 3-4 are also patentable for their additional limitations because *Frank* does not teach these additional limitations.

Claims 5-8 and 9-12 recite limitations corresponding to claims 1-4, and are therefore patentable for at least the same reasons as claims 1-4.

The allegation that “[r]egarding the dependent claims 2-4, 6-8, and 10-12, the cited section also show that the virtual address is converted to the extent recited, the relocation blocks are allocated (in the caches) upon receiving the address, and each entry corresponds to a block as recited” fails for several reasons. As indicated above, in *Frank*, there is only one level of conversion from the SVA (system virtual address) to the subpage, while, in claim 1, there are two levels of conversion from the virtual address to the relocation block because the virtual address is converted to the address of the memory page, which is then converted to the address of the relocation block.

Frank's Fig. 5 shows the system virtual address at the top and an address within the

cache at the bottom. *Frank*, in the cited paragraph that each cache with space allocated for a page may or may not contain a copy of all the page's subpages" does not show when the page/subpage are allocated. *Frank* thus fails to disclose "allocating the plurality of relocation blocks upon receiving the address of the memory page."

ADDED CLAIMS

Claims 13-27 are being added. Claims 13-16 depend directly or indirectly from claim 1 and are patentable for at least the same reasons as claim 1. They are patentable for their additional limitations because *Frank* does not teach these limitations.

Claims 17-20 depend directly or indirectly from claim 5 and are patentable for at least the same reasons as claim 5. They are patentable for their additional limitations because *Frank* does not teach these limitations.

Independent claim 21 is distinguished from *Frank* because of several limitations such as two levels of translation from a virtual address to a relocation block, using an entry to locate a relocation block if the address of the block is in the relocation table, and loading data if the address is not in the relocation table, etc. Claims 22-27 depend directly or indirectly from claim 21 and are patentable for at least the same reasons as claim 21. They are patentable for their additional limitations because *Frank* does not teach these limitations.

All limitations for added claims are supported in the Specification, and therefore no new matter is being added.

SUMMARY

In conclusion, Applicants respectfully submit that pending claims 1-12 (excluding canceled claims 2, 6, and 10) and added claims 13-27 clearly present subject matter that is patentable over the prior art of record, and therefore request that the Examiner withdraw the rejections of the pending claims, consider the added claims, and pass the application to issue. If the Examiner has questions regarding this case, the Examiner is invited to contact Applicants' undersigned attorney.

Respectfully submitted,

Wilson et al.

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By:



Tuan V. Ngo, Reg. No. 44,259
IP Administration
Legal Department, M/S 35
Hewlett-Packard Company
P. O. Box 272400
Fort Collins, CO 80527-2400
Phone (408) 447-8133
Fax (408) 447-0854